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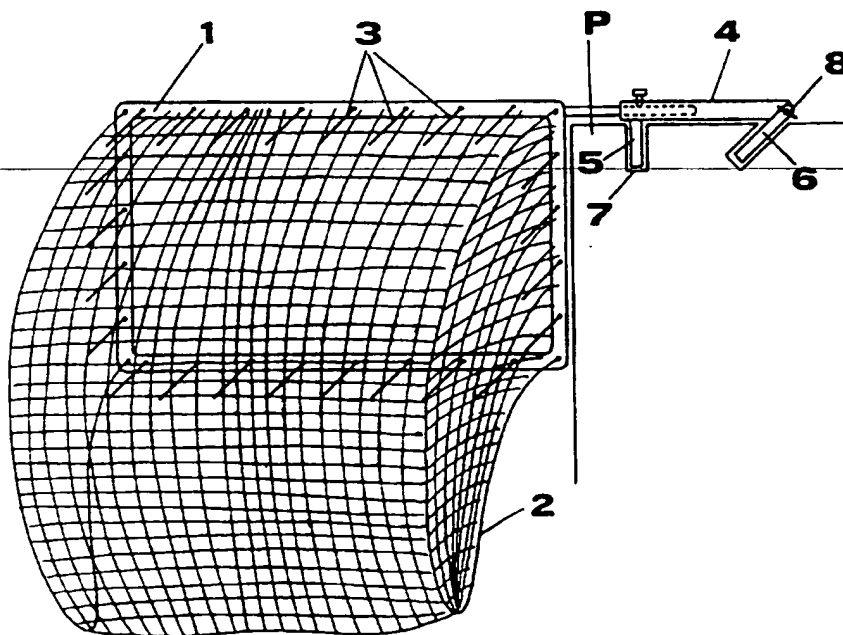
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(21) International Application Number: PCT/IT94/00013 (22) International Filing Date: 18 February 1994 (18.02.94) (30) Priority Data: RM93A000205 5 April 1993 (05.04.93) IT (71)(72) Applicants and Inventors: SAPUTO, Francesco [IT/IT]; Via della Nocetta, 83, I-00164 Roma (IT). ANTINORI, Tiziana [IT/IT]; Via della Nocetta, 83, I-00164 Roma (IT). (74) Agent: MASCIOLI, Alessandro; A.N.D.I. Associazione Nazionale Degli Inventori, Via Urbana, 20, I-00184 Roma (IT).	(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report.	

(54) Title: A DEVICE FOR THE AUTOMATIC COLLECTION AND REMOVAL OF LEAVES, ANIMALS, POLLEN AND OTHER FLOATING MATERIALS IN OPEN-AIR SWIMMING POOLS AND SIMILAR

(57) Abstract

The device for the automatic collection and removal of leaves, animals, pollen and other floating materials in open-air swimming pools and similar comprises a frame (1) with a collection net (2) of the sack-kind, provided with means (5, 6) for the application thereof onto the edges of swimming pools (P) in a position perpendicular to the slow motion of the surface currents generated by the water exchange system, so as to collect leaves and other floating materials. Furthermore, in possible variants the device according to the present invention comprises application means in the two possible motion directions of the surface currents of the swimming pools, working means without any intervention onto the edges of the swimming pools, means for a better collection of the floating materials and also for the collection of pollen and of other small materials.



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"A DEVICE FOR THE AUTOMATIC COLLECTION AND REMOVAL OF LEAVES,
ANIMALS, POLLEN AND OTHER FLOATING MATERIALS IN OPEN-AIR
SWIMMING POOLS AND SIMILAR"

The present invention concerns a device for the automatic collection and removal of leaves, branches, animals, pollen and other floating materials falling down in open-air swimming pools or similar, in particular in autumn and in winter, but also during the whole year, even if in different quantities.

Above mentioned need can be solved - at present - by the continuous care of apposite workers, with an evident time and cost engagement.

It is the aim of the preent invention to make the collection of the material fallen onto the liquid surface practically automatic, with an evident saving of work and time.

The aim set forth is reached by means of a device according to the present invention, based onto the analysis of the motion of the currents generated in the swimming pools by the water exchange system, which develop a slow circulation that drags the leaves and what is floating on the surface. The present invention comprises collection means, provided on the edges of said swimming pools, for leaves, floating pollen and

other eventual objects of great dimensions or broken, dragged by said circulation.

The present invention will be described more in detail hereinbelow according to the enclosed drawings in which some preferred embodiments are shown.

Figure 1 shows an axonometric view of a device according to the present invention, working on the edge of a swimming pool.

Figure 2 shows a lateral view of a variant of the device according to the present invention, applied to a swimming pool with an extroverted, perimetrical kerb.

Figure 3 shows an axonometric view of a further variant of the device for the automatic collection and removal of leaves, animals and floating materials from open-air swimming pools and similar, according to the present invention.

Figure 4 shows a front view of two orientable small outlet openings with a metal ring and a ball, in swimming pools without surface vortex, but with contrasting currents.

Figure 5 shows a lateral scheme of an addition block for the working of the device according to the present invention, on the edges of swimming pools P.

The enclosed figures show a device for the automatic collection and removal of leaves, dead animals, pollen and other floating materials from open-air swimming pools and similar, comprising:

- a frame 1, preferably rectangular, that is to be placed perpendicularly to the motion of the currents generated by the water exchange system of the swimming pool;
- a collection net 2 of the sack-kind, applied to said frame 1;
- a plurality of perimetrical extroversions 3 around said frame 1, that will prevent an occlusion due to the folding of said net 2;
- a telescopic handle 4, provided with means 5 and 6 for the locked-up fixing of said frame 1, perpendicular to the current, onto the perimetrical structure of the swimming pool P, with an eventual adjusting so that the leaves and similar, dragged by the slow surface motion, get stored up inside the sack-like net 2 and may be removed, according to the aim set forth by the present invention.

Said fixing and adjusting means are dependent on the perimetrical structure of the swimming pool P; in the exemplifying variants shown in figures 1 and 2, said means consist of vertical pins 5 that are inserted, for the fixing, in apposite housings 7 provided in the plane edge of said swimming pool P, and of inclined pins 6 blocked in the connection point with the handle 4 by means of a butterfly 8

or similar, that are inserted in inclined housings provided in said structure.

In the variant of the swimming pool provided with an extroverted walking kerb C, an inclined pin 6 as described above is sufficient for blocking the handle 4.

For what concerns the variants relating to possible improvements of figures 3, 4 and 5, the present invention concerns:

- an ending means 9 at the two sides of the upper base 10 of said frame 1 supporting a net 18, jointed in 11 for the alternative working in the two motion directions of the surface currents;
- a plurality of small outlet openings 16 with a metal ring 12 and a ball 13 for swimming pools with contrasting currents;
- one or more marmor or synthetic material blocks with rounded edges and appropriate holes 15 and 17 for the working of end parts 9 without performing holes in the structure of the edges of the swimming pool P, as they are applicable by adhesion and removable at the end of working;
- a net 18 with a very tight weft for collecting also the floating pollen and other dust-like materials;
- a surface depurator, coupled to above mentioned means.

The functioning of the device according to the present invention seems to be evident:

- the telescopic handle 4 is adjusted in such a way that the vertical upright of the frame 1 is adjacent to the wall of the swimming pool P;
- the pins 5 and/or 6 are inserted and are blocked by means of butterflies 8 or similar, so that the frame 1 is perpendicular to the motion of the light surface currents that determine the dragging of the leaves inside the sack-like net 2;
- when said net 2 is full, the means 5 and 6 are unblocked and the net is emptied.

Furthermore, by means of the improved device according to figures 3, 4 and 5 it is possible to collect in said tight net 18, beyond the leaves, the pollen and other floating materials, also living and dead animals like mice, frogs, insects, ophidians and invertebrates which usually may fall into the water and/or may be found in open-air swimming pools.

In a further possible variant of the improved device according to the present invention, said collection net will be realized of one piece with the supporting structure by means of a die-fusion in PVC.

CLAIMS

1. A device for the automatic collection and removal of leaves, animals, pollen and other floating materials in open-air swimming pools and similar, characterized in:
 - a frame (1) to be placed perpendicularly to the motion of the currents generated by the water exchange system of the swimming pool;
 - a collection net (2) of the sack-kind, provided on said frame (1);
 - a plurality of perimetrical extroversions (3) around said frame (1) for preventing the occlusion due to the folding of said net (2);
 - a telescope handle (4) provided with means (5, 6) for the locked-up fixing of the frame (1) in perpendicular, with respect to the current, to the perimetrical structure of the swimming pool (P), with the possibility of adjustment so that leaves and similar, dragged by the slow surface motion, get stored up inside the sack-like net (2) and may be removed.
2. A device according to claim 1, characterized in that said fixing and adjusting means consist of vertical pins (5) that are inserted, for the fixing, onto apposite housings (7) provided in the plane edge of said swimming pool (P), and of inclined pins (6) blocked, in the connection point with said handle (4), by means of a butterfly (8) or similar, which are inserted into inclined housings provided in said structure.

3. A device according to claim 1, of the kind applicable to swimming pools (P) provided with an extroverted walking kerb (CV), characterized in that said handle (4) is blocked by means of the sole inclined pin (6).

4. A device according to claim 1 characterized in:

- an ending element (9) at the two ends of the upper surface (10) of the frame (1) for supporting a net (18), jointed in (11) for the alternative working in the two motion directions of the surface currents;
- a plurality of small outlet openings (16) with a metal ring (12) and a ball (13), for swimming pools with contrasting currents;
- one or more marmor or synthetic material blocks with rounded edges and appropriate holes (15) and (17) for the working of said ending parts (9), without performing holes in the structure of the edges of said swimming pool (P) as they are applicable by adhesion and removable after use;
- a net (18) with a very tight weft for collecting also floating pollen and other dust-like materials;
- a surface depurator coupled to above mentioned means.

5. A device according to claim 1, characterized in a collection net realized of one block with the supporting structure by means of a die-fusion in PVC.

FIG.1

1/2

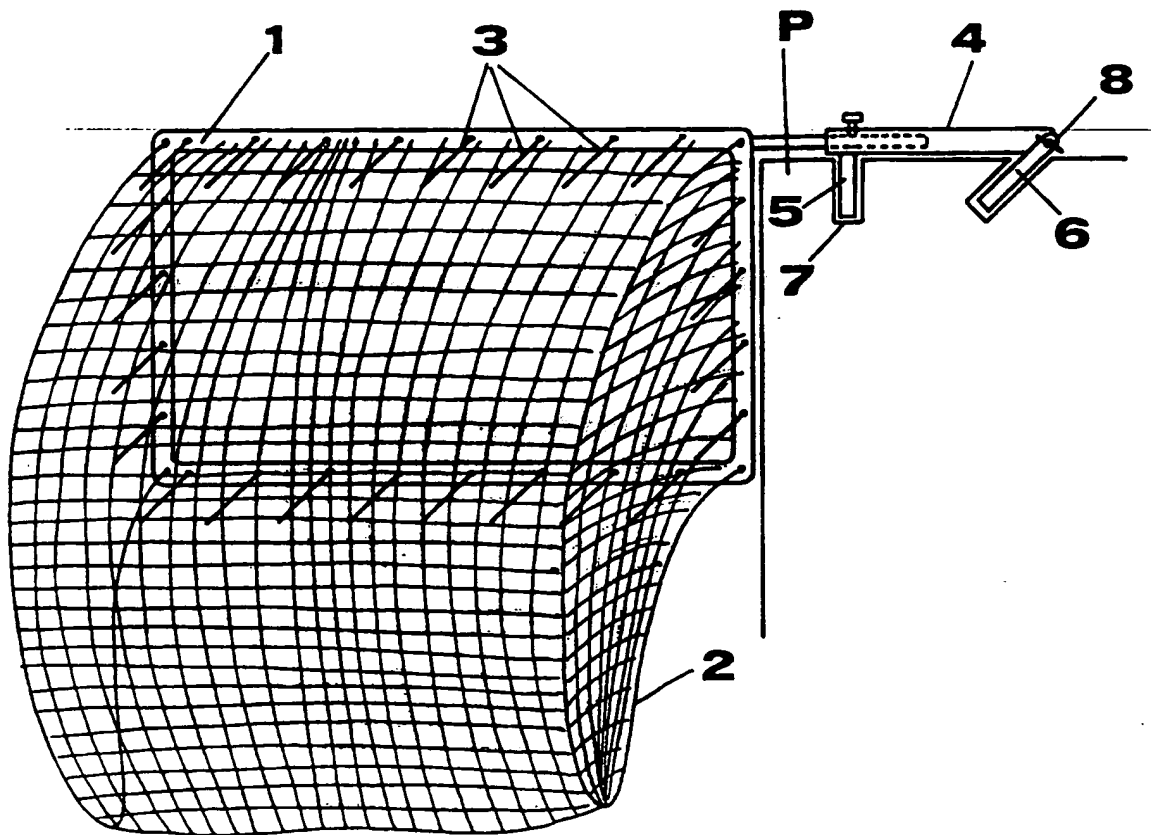
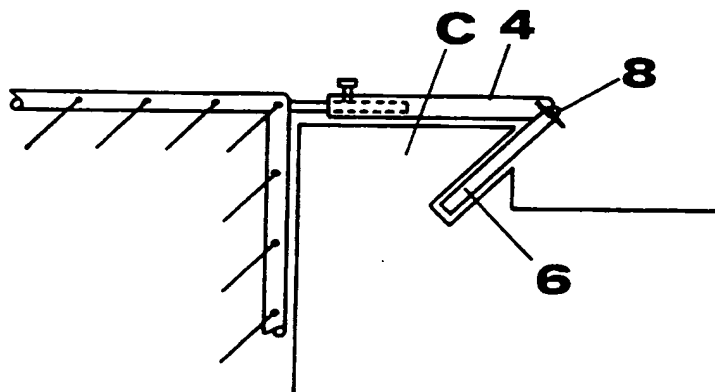


FIG.2



2/2

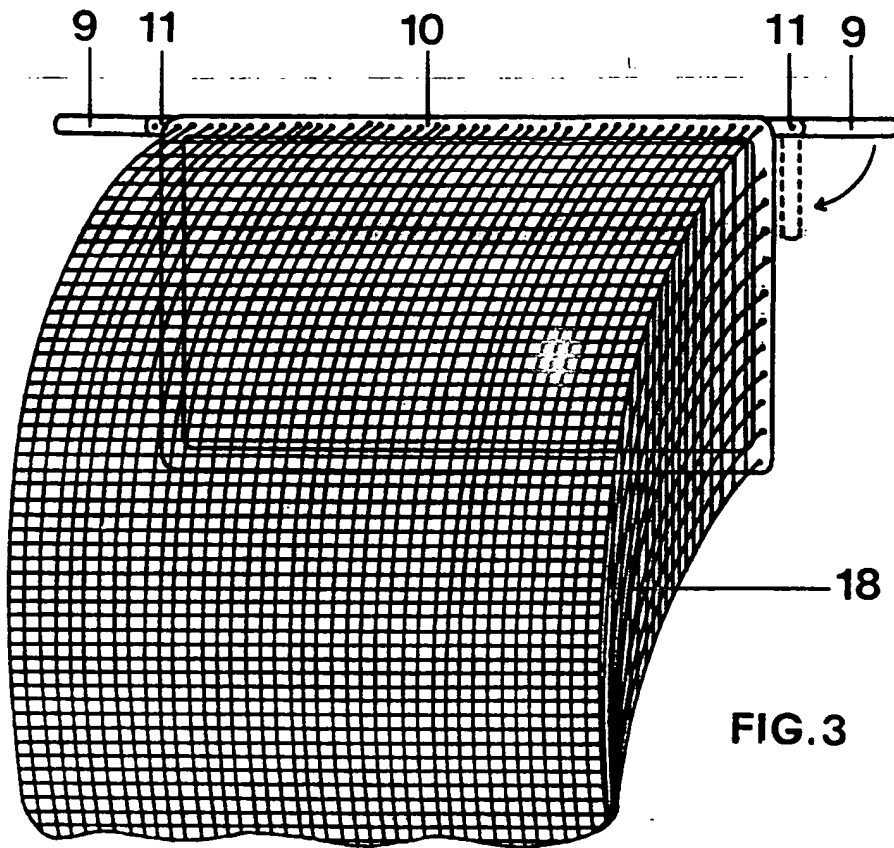


FIG. 3

FIG. 4

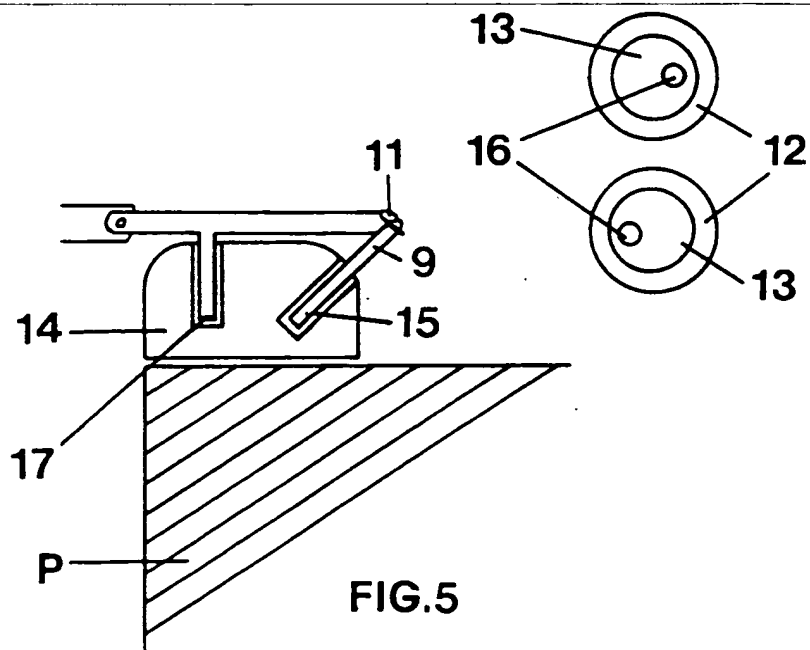


FIG. 5

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 5 E04H4/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,5 173 181 (MCFARLAND) 22 December 1992 see the whole document ---	1
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-5173181	22-12-92	NONE	
US-A-4332683	01-06-82	NONE	
US-A-4836920	06-06-89	NONE	